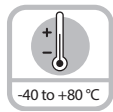


Linear Position Technology

Draw Wire Mechanics with Encoder or Analog Sensor

Draw Wire Encoder DW108



Wide temperature range
-40 to +80 °C



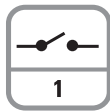
High protection level
IP 67



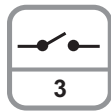
Shock/vibration resistant



Redundancy



Relay output



Switching output

Robust

- Measuring length up to 5 m.
- Different types of sensors (analog, incremental, CANopen, relay output, switch).
- Linearity up to $\pm 0.1\%$ of the measuring range.
- IP67 protection level and wide temperature range from -40 to +85 °C.



Advantages

- Cost, space and installation work saving.
- Simple selection and fast installation.
- High accuracy at economic prices.
- Reliability and long service life for outdoor applications.

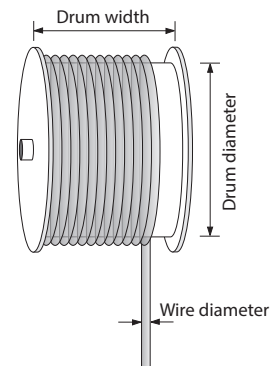
Versatile

- Integrated inclinometer.
- Redundant sensors.
- The suitable measuring length for every application.
- For even higher plant availability.

Mechanical Characteristics (Draw Wire Mechanics):

Measuring range:	1.0 - 5.0 m
Measuring wire:	material 304 stainless steel, nylon coated
	diameter $\varnothing$ 0.9 mm
	$\varnothing$ 0.61 mm (ABZ incremental)
Wire fastening:	Eyelet
	internal diameter $\varnothing$ 8 mm
	outer diameter $\varnothing$ 15 mm
	height 2 mm
Max. speed:	1 m/s
Max. acceleration:	10 m/s ²
Linearity (entire measuring range):	
	analog $\pm 0.8\%$
	incremental (1 - 2 m) $\pm 0.1\%$
	incremental (3 - 5 m) $\pm 0.3\%$
	CANopen/relay $\pm 0.5\%$
Repeat accuracy (entire measuring range):	
	analog $\pm 0.3\%$
	incremental (1 - 2 m) $\pm 0.1\%$
	incremental (3 - 5 m) $\pm 0.15\%$
	CANopen/relay $\pm 0.1\%$
Retraction force:	0.44 lbs (2 N)
Extension force:	1.79 lbs (8 N)
Drum circumference:	245 mm
Housing:	poly carbonate reinforced with glass fibers
Protection:	IP67
Temperature range:	-40 to +185 °F (-40 to +85 °C)
Weight:	1.1 lbs (0.5 kg)
Stock resistance acc. to EN 60068-2-27:	30 g (300 m/s ²), 11 ms
Vibration resistance acc. to EN 60068-2-6:	10 g (100 m/s ²), 10-500 Hz

Operating Principle:



Construction:

The core of a draw wire device is a drum mounted on bearings, onto which a wire is wound. Winding takes place via a spring-loaded device.

Note:

Exceeding the maximum extension length of the draw wire will lead to damage to the wire and the mechanics.

Draw Wire Encoder DW108

Electrical Characteristics:

Power supply:	9-30 VDC 5 VDC ±10% (Analog only) 12-30 VDC (Analog only)
Electromagnetic compatibility:	acc. to EN 61326-1, EN 61326-3-1
RoHS compliant acc. to EU guideline 2011/65/EU	

Analog sensor:

Output signal:	analog
Resolution:	12 bit

Incremental output:

Output signal:	AB (Z optional)
Resolution:	512 / 1024 ppr
Current consumption (non load):	max. 100 mA
Output current:	max. 50 mA
Circuit:	TTL

CANopen:

Output signal:	CANopen (DS301)
Resolution:	14 bit
Resolution inclinometer:	0.1°
Accuracy inclinometer:	±0.6°
Temperature drift inclinometer:	±0.01% / °C

Relay output:

Output signal:	1x relay (Normally Open)
Maximum current:	50 mA
Hysteresis:	20 mm (factory setting)

Switch output:

Output signal:	switch
Maximum current:	0.5 A
Mechanical service life:	
without load	min. 1,000,000 switching operations (60 switching operations/ min.)
under load	min. 30,000 switching operations (30 switching operations/ min.)

Accessories:

- See page H1, Connectivity, for cables and connectors

Linear Position Technology

Draw Wire Mechanics with Encoder or Analog Sensor

Draw Wire Encoder DW108

Standard Wiring:

Analog Sensor Output:

Connection Type	+V	N/C	Common (0V)	Out 1	Out 2
M12 Eurofast	1	2	3	4	5

Incremental Output:

Connection Type	+V	Common (0V)	A	B	Z
M12 Eurofast	1	2	3	4	5
Cable	WH	YE	BN	GN	GY

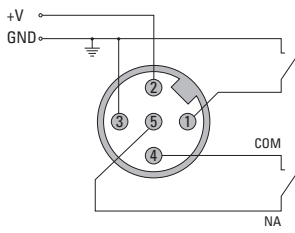
CANopen Output:

Connection Type	Common (0V)	+V	CAN GND	CAN High	Can Low
M12 Eurofast	3	2	1	4	5

Relay Output:

Connection Type	TEACH	+V	Common (0V)	C	NO
M12 Eurofast	1	2	3	4	5

The switching point of the relay can be set by means of a button connected to pin 1 (Teach). To do so, position the draw wire mechanic at the desired switching point and then press the button once.

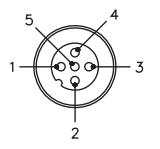
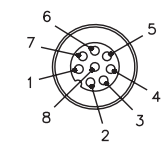
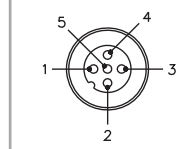


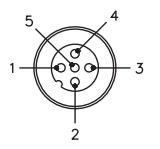
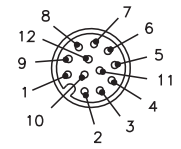
Switching Output:

Connection Type	NC1	NO1	C1	NC2	NO2	C2	NC3	NO3	C3	N/C	N/C	N/C
M12 Eurofast	1	2	3	4	5	6	7	8	9	10	11	12

Wiring Diagram:

+V	Power supply +VDC
0V	Power supply GND (0V)
Output1	Analog voltage output 1
Output2	Analog voltage output 2
A	Incremental output channel A
B	Incremental output channel B
Z	Incremental output channel Z
TEACH	Teach function input
C	Relay contact C
NO	Relay contact Normally Open
C1	Switching contact C1
C2	Switching contact C2
C3	Switching contact C3
NO1	Switching contact Normally Open 1
NO2	Switching contact Normally Open 2
NO3	Switching contact Normally Open 3
NC1	Switching contact Normally Closed 1
NC2	Switching contact Normally Closed 2
NC3	Switching contact Normally Closed 3

Analog Output	Incremental Output	CANopen Output
Male Encoder View	Male Encoder View	Male Encoder View
		
Mating Cordset: RK 4.5T-*/S618	Mating Cordset: E-RKC 8T-930-*	Mating Cordset: RKC 572-*/M/S3117

Relay Output	Switching Output
Male Encoder View	Male Encoder View
	
Mating Cordset: RK 4.5T-*	Mating Cordset: RKC 12T-*

* Length in meters.

Draw Wire Encoder DW108

Part Number Key: DW108 with Absolute Encoder

A	B		C		D		E		F
DW	1000	-	108	-	9D14B	-	H1151	/	Specials

A	Type
DW	Draw Wire

B	Measuring Range
1000	1000 mm Steel Wire
2000	2000 mm Steel Wire
3000	3000 mm Steel Wire
4000	4000 mm Steel Wire
5000	5000 mm Steel Wire

C	Housing
108	108 mm

D	Voltage Supply and Output Type
9D14B	9-30 VDC, CANopen, 14-bit

E	Type of Connection
H1151	5-pin M12 Eurofast Connector

F	Specials
(BLANK)	No Options
N81	1 Inclinator
N82	2 Inclinator

Part Number Key: DW108 with Incremental Encoder

A	B		C		D		E		F
DW	1000	-	108	-	FL512	-	H1151	/	Specials

A	Type
DW	Draw Wire

B	Measuring Range
1000	1000 mm Steel Wire
2000	2000 mm Steel Wire
3000	3000 mm Steel Wire
4000	4000 mm Steel Wire
5000	5000 mm Steel Wire

C	Housing
108	108 mm

D	Voltage Supply and Output Type
FL512	9-30 VDC, TTL, 512 ppr, A&B Only
FL1024	9-30 VDC, TTL, 1024 ppr, A&B Only
FM512	9-30 VDC, TTL, 512 ppr, A/B/Z
FM1024	9-30 VDC, TTL, 1024 ppr, A/B/Z

E	Type of Connection
H1151	5-pin M12 Eurofast Connector ¹⁾
C	Radial Cable (2 m PUR)

¹⁾Must include 'N88' in Specials

F	Specials
(BLANK)	No Options
N88	Standard 5-pin M12 Wiring ²⁾

²⁾N88 must be included with 'H1151'

Part Number Key: DW108 with Analog Sensor

A	B		C		D		E
DW	1000	-	108	-	8F	-	H1151

A	Type
DW	Draw Wire

B	Measuring Range
1000	1000 mm Steel Wire
2000	2000 mm Steel Wire
3000	3000 mm Steel Wire
4000	4000 mm Steel Wire
5000	5000 mm Steel Wire

C	Housing
108	108 mm

D	Voltage Supply and Output Type
7E	12-30 VDC, 4-20 mA
7G	12-30 VDC, 4-20 mA, Redundant
8F	12-30 VDC, 0-10 V
8G	12-30 VDC, 0-10 V, Redundant
HA	5 VDC, 0.5-4.5 V
HB	5 VDC, 0.5-4.5 V, Redundant
HC	12-30 VDC, 0.5-4.5 V
HD	12-30 VDC, 0.5-4.5 V, Redundant

E	Type of Connection
H1151	5-pin M12 Eurofast Connector

Linear Position Technology

Draw Wire Mechanics with Encoder or Analog Sensor

Draw Wire Encoder DW108

Part Number Key: DW108 with Relay Output

A	B		C		D		E
DW	1000	-	108	-	KA	-	H1151

A	Type
DW	Draw Wire

C	Housing
108	108 mm

B	Measuring Range
1000	1000 mm Steel Wire
2000	2000 mm Steel Wire
3000	3000 mm Steel Wire
4000	4000 mm Steel Wire
5000	5000 mm Steel Wire

D	Voltage Supply and Output Type
KA	9-30VDC, 1x Relay(Normally Open)

E	Type of Connection
H1151	5-pin M12 Eurofast Connector

Part Number Key: DW108 with Relay Output

A	B		C		D		E
DW	1000	-	108	-	KB	-	H11121

A	Type
DW	Draw Wire

C	Housing
108	108 mm

B	Measuring Range
1000	1000 mm Steel Wire
2000	2000 mm Steel Wire
3000	3000 mm Steel Wire
4000	4000 mm Steel Wire
5000	5000 mm Steel Wire

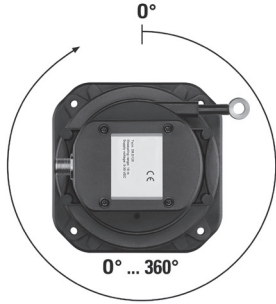
D	Voltage Supply and Output Type
KB	9-30 VDC, 3x switching contact (Normally Open/Closed)

E	Type of Connection
H11121	12-pin M12 Eurofast Connector

Draw Wire Encoder DW108

Technology in Detail

CANopen with inclinometer:

Setting possibility 360°	Setting possibility ±180°
	
angle: 0-360°	angle: ±180°

Redundant signals possible.

Setting possibilities:

- Switching between setting possibilities 180° and 360°.
- Switching between synchronous and asynchronous output.
- Change of direction of rotation (cw/ccw).
- Setting and resetting an offset.

Draw Wire Encoder DW108

